

Physiological Dynamics of Graying Hair - Improper Redundant Follicular Formation

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Introduction

Although a non-trivial amount of research has been done into the problem of alopecia with much of that research being shoddy at best, leading to the marketing of a number of dangerous prescription medications for the treatment of alopecia, even less work has been done in terms of the study of graying hair which, although not an urgent medical problem, represents an under-studied phenomenon of physiognomy.

Abstract

It has long been assumed that the chief distinguishing characteristic differentiating a gray hair from a darker-colored hair is pigmentation. This false assumption has resulted in a number of missed opportunities to study follicular dynamics which may have wider implications for understanding how to control the activity of stem cells for non-cosmetic medical purposes.

I propose that the color of hair is not determined by pigment, but rather the configuration and density of the proteins of which the hair is composed. A normative human hair issues from a follicle which synthesizes amino acids into structured proteins of a particular configuration and density. Over time and depending upon genetic factors, the likelihood of a follicle producing gray or silver hair will increase over time. Once color has changed from its original color to gray, it never switches back to the original color and as yet, no one has found a means of artificially coaxing follicles into switching back to producing normative hairs after this change has occurred.

The medical/research community has long been operating under the assumption that an epigenetic switch simply needs to be thrown in order to bring about this change in color, but that switch has somehow not yet been identified. I propose that the reason for the difficulty in identifying this switch is its non-existence. An entirely different dynamic is at play. *That dynamic is the errant formation of a redundant, microscopic hair follicle beneath the primary follicle which has a growth path that takes it through the primary follicle.*

There is biological precedent for redundant follicular formation (permanent teeth forming behind baby teeth being a prime example) as there is precedent for the post-pubescent formation of new hair follicles (Hirsutism.) It is reasonable to conclude, therefore, that skin cells can, with the proper chemical signaling, be converted into stem cells capable of producing hair. The most likely location for these novel follicles to form is in proximity to existing follicles as the existing

follicles have an mRNA signature which is used as a sort of template which governs the new mode of function of the converted cells.

The single, most likely location for an improper follicle to form is directly beneath the original follicle. In the case of hair, when this occurs, coherent protein structures of comparatively low density pass directly through the zone in which proteins would ordinarily coalesce in the normative follicle. This passage disrupts the function of the normative follicle and results in only the novel, improperly formed, redundant follicle being able to produce intact hair. These hairs, given that they are lower in density and are constructed from skin cells converted in a haphazard manner into follicular stem cells rather than from purpose-built follicular cells shaped according to specific DNA programming, are gray in color, are thin and frequently, are brittle. It is staggering that researchers have heretofore failed to take into consideration these other distinguishing qualitative characteristics of gray hair which provide clues as to the underlying cause of the phenomenon. They also have a tendency to grow outward in a direction not consistent with the "training" of the normative hair. "Hair training" is a property of the follicle as repeated tugging over time changes the physical orientation of the follicle within the epidermis. The fact that newly gray hairs issue in a direction in conflict with the established training of the extant follicle is further evidence for my contention that gray hairs are the result of the activity of a heretofore unrecognized redundant follicle.

Conclusion

The recognition of redundant follicularization as the underlying cause of hair graying may produce biomedical research overruns including new insights into the behavior of stem cells vis a vis the dynamics of wound healing, artificial organ regeneration augmented by stem cells, ectopic tissue deposition disorders such as endometriosis and migraine-associated neuro-spinal deposition and the metastasis of cancers.

In terms of the treatment of gray hair, if a method could be devised to inactivate the growth of the redundant follicle without inactivating the primary follicle, hair could be expected to return to its normative color as the result of such a treatment.